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SYNTHESIS

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SYNTHESIS

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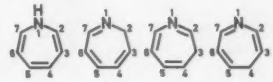
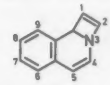


1*H*- 2*H*- 3*H*- 4*H*-

- 2-(1-Alkenyl)-hexahydroazepines
- Synthesis 627 (6933)
● Azete

- 4-Alkoxy-2-oxoazetidines
- Ring Synthesis 1070
● Azeto[2,1-*a*]isoquinoline



9b*H*-

- 2-Oxo-1,2,4,5-tetrahydro-9b*H* Der.
- Ring Synthesis 846
● Azido Compounds
- Conversion into Primary Amines 176 (6823)
- 2-Azido-3-alkanelactams
- Synthesis 809
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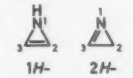
● Azirine



1*H*- 2*H*-

- Aziridines
- Ring Synthesis 969
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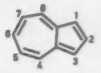
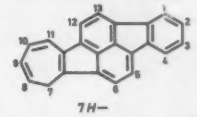


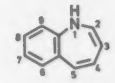
- 2-Oxo-2,3,3a,4,7,8-hexahydroazulenes
- Ring Synthesis 557
- 2,4-Dioxo-1,2,4,5,6,7,8,8a-octahydroazulenes
- Ring Synthesis 556
- 1-Oxo-1,2,3,4,5,6,7,8-octahydroazulenes
- Ring Synthesis 549
- 4-Oxo-1,2,4,5,6,7,8,8a-Octahydroazulenes
- Ring Synthesis 77 (6786)
● Azuleno[1,3-*cd*]fluoranthene



7*H*-

- 6b,8,9,10,11,11a-Hexahydro-7*H* Der.
- Ring Synthesis 164

● Barbituric Acids (Spiro-substituted)
- Synthesis 204
● 1-Benzazepine



1*H*-

- 2,5-Dioxo-2,5-dihydro-1*H*-1-benzazepines
- Ring Synthesis 349
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see also: Arenes
- Ring Synthesis 787
- Alkylbenzenes
- Synthesis 326
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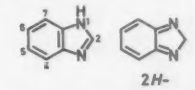
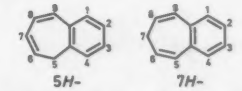
- Chlorination 792 (6952)
● Benzimidazole



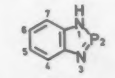
2*H*-

- Benzimidazoles
- *N*-Alkylation 740
- 2-Oxo-2,3-dihydrobenzimidazoles
- *N*-Alkylation 740
- 2-Thioxo-2,3-dihydrobenzimidazoles
- Ring Synthesis 807
● Benzocycloheptene



5*H*- 7*H*-

- 5-Oxo-1,2,3,6,7,8,9,9a-octahydro-5*H*-benzocycloheptenes
- Ring Synthesis 77 (6786)
● 1,3,2-Benzodiazaphosphole



1*H*-

- 2-Amino-2,3-dihydro-1,3,2-benzodiazaphosphole 2-Sulfides
- Ring Synthesis 980

● 1,4-Benzodithiine

- 1,4-Benzodithiine 1,1-Dioxides
- Ring Synthesis 854

● 1,3-Benzodithiole

- 2-Dicyanomethylene-1,3-benzodithioles
- Ring Synthesis 799
- 2-Oxo-1,3-benzodithioles
- Ring Synthesis 818
- 2-Imino(and Cyanoimino)-4,5,6,7-tetrahydro-1,3-benzodithioles
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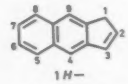
● 1-Benzofuran

- 1-Benzofurans
- Ring Synthesis 18, 19
- Indirect Nitration 978
- 3-(1-Benzofuran-2-yl)-3-oxoalkanoic Esters
- Ring Synthesis 1068
- 2,3-Dihydro-1-benzofurans
- Ring Synthesis 950
- 2-(1-Alkenyl)-2,3-dihydro-1-benzofurans
- Ring Synthesis 180 (6837)

● 2-Benzofuran

- Phthalides (1-Oxo-1,3-dihydro-2-benzofurans)
- Ring Synthesis 788

● Benzo[*f*]indene

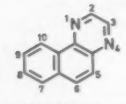


- 2,3,3a,4-Tetrahydro-1*H* Der.
- Ring Synthesis 466

● 1-Benzopyran

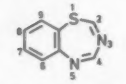
see: Chromene

● Benzo[*f*]quinoxaline



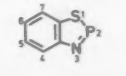
- 7,10-Dihydroxy-6-oxo-2,3,4,6-tetrahydro Der.
- Ring Synthesis 954

● 1,3,5-Benzothiadiazepine



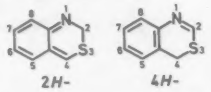
- Ring Synthesis 805

● 1,3,2-Benzothiazaphosphole



- 2,3-Dihydro-1,3,2-benzothiazaphosphole 2-Sulfide, 2-Amino-, 2-Alkylthio-, and 2-Arylthio Der.
- Ring Synthesis 980

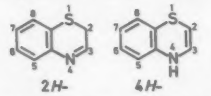
● 3,1-Benzothiazine



2*H*- 4*H*-

- 4-Oxo-2-(2-pyrrolyl)-4*H*-3,1-benzothiazines
- Ring Synthesis 69
- 4-Thioxo-2-(2-pyrrolyl)-4*H*-3,1-benzothiazines
- Ring Synthesis 799

● 1,4-Benzothiazine



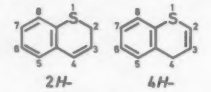
2*H*- 4*H*-

- 3-Oxo-3,4-dihydro-2*H*-1,4-benzothiazines
- Ring Synthesis 851

● 1,3-Benzothiazole

- 1,3-Benzothiazoles
- Ring Synthesis 145
- 2-Oxo-2,3-dihydro-1,3-benzothiazoles
- Ring Synthesis 254

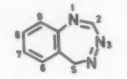
● Benzo[*b*]-1-thiopyran (1-Benzothiine)



2*H*- 4*H*-

- 1-Thiocoumarins
- Ring Synthesis 518
- 1-Thioflavones
- Ring Synthesis 519

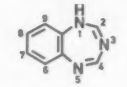
● 1,3,4-Benzotriazepine



5*H*-

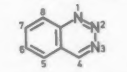
- 3,4-Dihydro-5*H*-1,3,4-benzotriazepines
- Ring Synthesis and Transformation 1065

● 1,3,5-Benzotriazepine



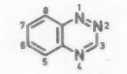
- Ring Synthesis 805

● 1,2,3-Benzotriazine



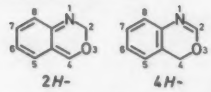
- 2$^{\oplus}$-1,2,3-Benzotriazinium-4-oxides
- Synthesis 715

● 1,2,4-Benzotriazine



- 5,6,7,8-Tetrahydro-1,2,4-benzotriazines and 1-Oxides
- Ring Synthesis 351

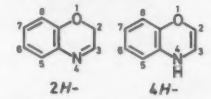
● 3,1-Benzoxazine



2*H*- 4*H*-

- 2-(1,3-Benzothiazol-2-yl)-4-oxo-4*H*-3,1-benzoxazines
- Ring Synthesis 520
- 4-Oxo-2-(2-pyrrolyl)-4*H*-3,1-benzoxazines
- Ring Synthesis 69
- Isatoic Anhydrides (2,4-Dioxo-1,2-dihydro-4*H*-3,1-benzoxazines)
- Reaction with Acylhydrazines 1065

● 1,4-Benzoxazine



2*H*- 4*H*-

- 3-Oxo-3,4-dihydro-2*H*-1,4-benzoxazines
- Ring Synthesis 851

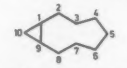
● Betaines (Synthesis)

- Ammonioalkyl Phosphate Betains 870
- 2$^{\oplus}$-1,2,3-Benzotriazinium-4-oxides 715
- Cyclobutenedione Betains 754
- 1,3-Dithiolium-4-oxides and -4-thiolates 804
- [1,3]Thiazolo[2,3-*a*]isoquinolinium-2-thiolates 801
- 1,2,4-Triazolium-3-thiolates 805

● Biaryls

- Synthesis 713

● Bicyclo[7.1.0]decane



- Bicyclo[7.1.0]dec-3-ynes
- Ring Synthesis and Reactions 1010

● Bicyclo[2.2.1]heptane (Norbornane)

- 1,4-Dichloro-2-oxobicyclo-[2.2.1]heptanes
- Synthesis 1012
- Bicyclo[2.2.1]heptenes
- Ring Synthesis 524 (6900)
- 5-(2-Alkynyl)-bicyclo[2.2.1]hept-2-enes
- Ring Synthesis 337
- 2-Formylbicyclo[2.2.1]hept-5-enes
- Ring Synthesis and Reactions 1012

● Bicyclo[3.1.1]heptane

- 2-Formylbicyclo [3.1.1]hept-2-enes
- Synthesis 469, 472

● Bicyclo[4.1.0]heptane

- 7-Alkoxycarbonylbicyclo[4.1.0]heptanes
- Ring Synthesis 636
- 4-Acylbicyclo[4.1.0]hept-2-enes
- Ozonization 428

● Bicyclo[3.1.0]hexane

- 2-Oxobicyclo[3.1.0]hexanes
- Ring Synthesis 530

● Bicyclo[2.2.2]octane

- 5-(2-Alkynyl)-bicyclo[2.2.2]oct-2-enes and 7,8-Dioxo Der.
- Ring Synthesis 337

● Bicyclo[3.2.1]octane

- 6-Methylene-3-oxobicyclo[3.2.1]octanes
- Ring Synthesis 525 (6903)

● Bipyridines and Ring-fused Derivatives
- Synthesis 736, 936, 937

● Boranes
- 9-(1-Alkynyl)-9-borabicyclo[3.3.1]nonane
- Reaction with 1-Alkenyl Ketones 303
- 3-(Diethylboryl)-pyridine
- Reaction with Heteroaryl Halides 936

● Boronic Acid Esters
- 1-Alkeneboronic Esters
- Synthesis 393, 919 (*Z*)
- Reactions 919 (*Z*)
- 1-Bromo-1-alkeneboronic Esters
- Synthesis and Hydrodebromination 919

● Brevicomin (Synthesis) 370

● *C*-Bromo Compounds
- Bromoalkanes
- Synthesis 34, 1079 (6992)
- 1-Bromo-2,6-alkadienes
- Synthesis 876 (*Z*)
- 1-Bromo-1-alkenes
- Synthesis 650 (*E*), 919 (*E*)
- 2-Bromo-1-alkenes
- Synthesis 174 (6817)
- ω-Bromo-1-alkenes
- Synthesis 885
- Bromoalkenes Type C=C−C−Br
- Synthesis 841
- 1-Bromobutadiene
- Synthesis 885
- β-Bromoenamines
- Synthesis and Alkylation 175 (6821)
- Bromomethylarenes
- Oxidation 747
- *vic*-Dibromoalkanes
- Cyclization Reactions 127
- Debromination 792 (6954), 1027
- 1,4-Dibromoalkanes
- Cyclization Reactions 127
- 1,1-Dibromo-1-alkenes
- Conversion into Allenes 243
- 4,4-Dibromo-5-oxo-4,5-dihydropyrazoles
- Synthesis and Reactions 972
- Polybromoarenes
- Reaction with Potassium *t*-Butoxide 33

● *N*-Bromo Compounds
- *N*-Bromoimides
- Reaction with Alkylthio- and Arylthiotrialkylstannanes 1037

● Cadmium, Organic Derivatives
- Reaction with Alkyl Cyanoacetates 1085 (7009)

● Cannabinol, 3′-Hydroxy-Δ^9-tetrahydro-
- Total Synthesis 506

● Carbamic Acid Esters
- Synthesis 367 (6870)
- Cyclization Reactions 1045
- Alkyl *N*-(1-Alkoxyalkyl)-carbamates
- Synthesis 194
- Alkyl *N*-(ω-Aminoalkyl)-Carbamates
- Synthesis 1032
- Alkyl *N*-(4-Cyanoalkyl)-carbamates
- Synthesis 831
- *N*-(1-Arylalkylidene)-carbamic Esters
- Synthesis 688
- Reformatzky Reaction with Bromoacetic Esters 84 (6812)
- Aryl Carbamates
- Synthesis, *o*-Lithiation, and Subsequent Reactions 892 (6970)
- *N,N*-Disubstituted Carbamic Esters
- Cleavage 444 (6880)
- 4-Hydroxy-2-alkenyl Carbamates
- Synthesis and Cyclization Reactions 447 (6890)
- *N*-(5-Oxoalkyl)-carbamic Esters
- Synthesis 831

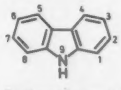
● Carbamimidium Salts
- Synthesis 287 (6845)

● Carbamimidothioic Acid Esters (*S*-Substituted Isothioureas)
- *S*-Alkyl *N*-Alkoxycarbonylcarbamimidothioates
- Cyclization Reactions 770
- *S*-Alkyl *N*′-Aminosulfonylcarbamimidothioates
- Synthesis and Cyclization Reactions 773

● Carbamodithioic Acid Esters
see: Dithiocarbamic Acid Esters

● Carbamothioic Acid Esters
see: Thiocarbamic Acid Esters

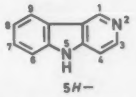
● Carbazole



- Carbazole and Tetrahydro Der.
- Ring Synthesis 299

● Carbenium Ions
- Reaction with Silanes 1002

● γ-Carboline (2-Carboline, Pyrido[4,3-*b*]-indole)



5*H*−
- 1,2,3,4-Tetrahydro-5*H*-γ-carbolines
- Ring Synthesis 912

● Carbon Dioxide
- Reaction with Alcohols 83 (6805)

● Carbon Disulfide
- Synthetically Useful Reactions 233, 797 (review), 854

● Carbonic Acid Esters
- Alkyl 1-Cycloalkenyl Carbonates
- Synthesis 1014
- Dialkyl Carbonates
- Synthesis 83 (6805)

● Carbonimidic Dichlorides
- Synthesis and Cyclization Reactions 520

● Carbonimidodithioic Acid Esters
- Cyclization Reactions 520

● Carbonochloridic Acid Esters
- Reaction with *N*-Silylimines 688

● Carbon Suboxide
- Cyclization Reactions 266

● Carboximidic Acid Esters
- Alkyl *N*-Aryl Formimidates
- Synthesis and Cyclization Reactions 1070

● Carboximidic Acid Fluorides
- Synthesis and Hydrolysis 838

● Carboximidium Salts
- Synthesis 287 (6845)

● Carboximidothioic Acid Anhydrosulfides
- Synthesis 720

● Carboxylic Acid Amides
- Synthesis 80 (6798), 363 (6860), 364 (6862), 413, 527 (6907), 785, 1034
- *O*-Alkylation 287 (6845)
- Cyclization Reactions 160
- Reaction with Amide Acetals 946
- 2-Acylaminobenzamides
- Synthesis 69
- 2-Acyl-4-arylsulfonylhydrazonoalkanamides
- Synthesis 874
- 2-Alkenamides
- Synthesis 393
- *N*-(2-Alkenyl)-*N*-alkylformamides
- Synthesis 40 (*Z*)
- *N*-(1-Alkenyl)-carboxamides
- Synthesis 188
- *N*-(2-Alkenyl)-carboxamides
- Synthesis 81 (6800), 188
- *N*-(3-Alkenyl)-carboxamides
- Synthesis 188
- 4-Alkoxybenzamides
- Synthesis 681
- *N*-Alkylcarboxamides
- Synthesis 195, 367 (6870)
- *N*-Alkyl-*N*-hydroxymethylformamides
- Synthesis and Reaction with P^{III} Chlorides 218
- *N*-Alkylidenecarboxamides
- Synthesis 688
- Arylsulfonylacetamides
- Cyclization Reactions 768
- *N*-(1-Chloroalkyl)-carboxamides
- Reaction with *CH*-Acidic Compounds 200
- Chlorofluoroacetamides
- Synthesis 838
- Cyanoacetamides
- Cyclization Reactions 768
- *N*-(4-Cyanoalkyl)-carboxamides
- Synthesis 831
- Dialkylformamides
- Synthesis 179 (6834)
- *N*-(Diphenylmethylene)-carboxamides
- Synthesis 688
- Reaction with *CH*-Acidic Compounds 206
- Formamides
- Synthesis 81 (6801)
- Glyoxylamides
- Synthesis 179 (6834)
- 3-Hydroxyalkanamides
- Synthesis 622 (6918)
- *N*-Methyl-*N*-(2-pyridinyl)-carboxamides
- Synthesis and Use as Acylating Agents 1048
- 2-Oxoalkanamides
- Synthesis 720
- 3-Oxoalkanamides
- Cyclization Reactions 671, 873, 874
- *N*-(3-Oxoalkyl)-carboxamides
- Synthesis 190
- 4-Oxo-6,7,8,9-tetrahydro-4*H*-pyrido[1,2-*a*]pyrimidine-3-carboxamides
- Synthesis 582
- Tetraalkylaminoacetamides
- Synthesis 433
- 2-Thioacylaminobenzamides
- Synthesis 69
- *N*-Thioacylcarboxamides
- Synthesis 946
- Trifluoroacetamide
- *N*-Monosubstitution and Cleavage 941

● Carboxylic Acid Anhydrides
- Cyclization Reactions 595
- Trimethylacetic Formic Anhydride
- Synthesis 81 (6801)

● Carboxylic Acid Bromides
- 2-Acetoxybenzoyl Bromide
- Synthesis and Reaction with 1,2-Alkanediols 142
● Carboxylic Acid Chlorides
- Reaction with Organomanganese(II) Halides 37
- Reaction with *N*-Silylimines 688
- Reductive Coupling with Benzyl Halides 795 (6961)
- Alkanoyl Chlorides
- Conversion into Alkyl Halides 1079 (6992)
- 2-Alkenoyl Chlorides
- Cyclization Reactions 856
- 3-Bromoacryloyl Chloride
- Synthesis 434 (*E*)(*Z*)
- 3-Bromo-3-chloroacryloyl Chlorides
- Synthesis 434 (*E*)(*Z*)
- Chloroacetyl Chloride
- Cyclization Reactions 851
- 3-Chloroacryloyl Chloride
- Synthesis 434 (*E*)(*Z*), 1122
- Chlorofluoroacetyl Chloride
- Synthesis 838 (optically active)
- 3,3-Dibromoacryloyl Chloride
- Synthesis 434
- 3,3-Dichloroacryloyl Chloride
- Synthesis 434
- *N*-Heterocyclic Carboxylic Chlorides
- Synthesis 583
- Polyfluoroalkanoyl Chlorides
- Reaction with Phenacylidenetriphenylphosphoranes 35
● Carboxylic Acid Esters
- Synthesis 364 (6862), 708 (6947)
- Conversion into Aldehydes 1084 (7005)
- Conversion into Carboxamides 80 (6798)
- Acetic Esters
- Synthesis 287 (6848)
- Hydrolysis 174 (6819)
- Acrylic Esters
- Reaction with Heterocyclic Compounds 488
- 2-Acyl-4-alkenoic Esters
- Synthesis 78 (6788)
- 3-Acylaminoalkanoic Esters
- Synthesis 190
- 5-Acylaminoalkanoic Esters
- Synthesis 831
- 2-Acylamino-2-alkenoic Esters
- Synthesis 418
- 3-Acylamino-2-alkenoic Esters
- Synthesis 618
- 2-Acylaminobenzoic Esters
- Synthesis 69
- 2-Acyloxy-2-alkenoic Esters
- Synthesis 989 (6985)
- 8-Acyloxy-3-alkenoic Esters
- Synthesis 876 (*E*)(*Z*)
- (3-Acylquinolin-2-ylthio)-acetic Esters
- Synthesis and Cyclization 673
- 2,4-Alkadienoic Esters
- Synthesis 50
- 2,6-Alkadienoic Esters
- Synthesis 1007
- 3,7-Alkadienoic Esters
- Synthesis 876 (*E*)(*Z*)
- Alkanoic Esters
- Synthesis 524 (6898)
- Aminomethylenation 78 (6789)
- 2-Alkenoic Esters
- Synthesis 392, 406, 814, 989 (6986) (*Z*), 1000
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- Michael Additions 164
- Reduction 309
- 3-Alkenoic Esters
- Synthesis 524 (6898)
- 4-Alkenoic Esters
- Synthesis 366 (6867), 524 (6898), 796 (6964) (*E*)
- 1-Alkenyl Formates
- Synthesis 626 (6930)
- 3-Alkoxy-2-alkoxycarbonylamino-alkanoic Esters
- Synthesis 194
- α-Alkoxy-α-arylacetic Esters
- Synthesis 80 (6797)
- 3-Alkoxycarbonylaminoalkanoic Esters
- Synthesis 84 (6812)
- 5-Alkoxycarbonylaminoalkanoic Esters
- Synthesis 831
- 3-Alkoxy-2-cyano-2-alkenoic Esters
- Cyclization Reactions 601
- Alkyl Arenecarboxylates
- Synthesis 365 (6866)
- Alkyl Chlorofluoroacetates
- Synthesis 838
- 3-Alkylsulfinyl-4-oxo-4-(3-pyridinyl)-butanoic Esters
- Synthesis and Desulfinylation 926
- 2-, 3-, and 4-(1-Alkynylseleno)-alkanoic Esters
- Synthesis 660
- 3-Aminoalkanoic Esters
- Synthesis 525 (6902)
- 2-Amino-2-alkenoic Esters
- Synthesis 53
- 3-Amino-2-alkenoic Esters
- Synthesis 1081 (6997)
- 2-Aminoalkyl Benzoates
- Synthesis 495
- 2-Amino-2-(dialkylphosphinyl)-acetic Esters
- Synthesis and Reaction with Aldehydes 53
- α-Aminomethylcarboxylic Esters
- Synthesis 365 (6865)
- 2-Aminomethylenealkanoic Esters
- Synthesis 78 (6789)
- 2-Arylalkanoic Esters
- Synthesis 82 (6802)(6803)(*R*), 231
- 4-Arylhydrazonoalkanoic Esters
- Synthesis 786
- (Arylmethylthio)-acetic Esters
- Synthesis and Cleavage 326
- 3-Aryl-3-oxopropanoic Esters
- Cyclization Reactions 518
- (Arylseleno)-acetic Esters
- Synthesis 1044
- 4-Arylthioalkanoic Esters
- Synthesis 524 (6898)
- 4-Arylthio-3-alkenoic Esters
- Synthesis 267
- 2-Aryl-2-hydroxyalkanoic Esters
- Synthesis 760
- 3-(1-Benzofuran-2-yl)-3-oxoalkanoic Esters
- Synthesis 1068
- Bicyclo[4.1.0]heptane-7-carboxylic Esters
- Synthesis 636
- Bis[3-indolyl]-acetic Esters
- Synthesis and Reduction 872
- 5-Chloro-3-hydroxythiophene-2-carboxylic Esters
- Synthesis 847
- Cyanoacetic Esters
- Cyclization Reactions 601
- 5-Cyanoalkanoic Esters
- Synthesis 286 (6844)
- 2-Cyano-2-alkenoic Esters
- Cyclization Reactions 976, 1075
- Cyclopropanecarboxylic Esters
- Synthesis 365 (6864), 428
- Disilylacetic Esters
- Synthesis 627 (6932)
- 3-(9-Fluorenyl)-alkanoic Esters
- Synthesis 164
- 5-Formylfuran-2-propenoic Esters
- Synthesis 488
- 5-Formylthiophene-2-propenoic Esters
- Synthesis 488
- 3-Hydroxyalkanoic Esters
- Synthesis 527 (6908)
- Imidazole (Benzimidazole)-carboxylic Esters
- Reduction 356
- 2-(1-Indanyl)-alkanoic Esters
- Synthesis 892 (6971)
- 3-(3-Indolyl)-2-alkenoic Esters
- Synthesis 236
- Mercaptoacetic Esters
- Cyclization Reactions 275
- Methoxybenzoic Esters
- Synthesis 504
- 2-Methylenealkanoic Esters
- Synthesis 406
- 2-Methylene-4-alkenoic Esters
- Synthesis 363 (6861)
- 2-Methylene-4-oxoalkanoic Esters
- Synthesis 81 (6799)
- 4-Nitroalkanoic Esters
- Synthesis 226
- *o*-Nitrocinnamic Esters
- Synthesis and Reductive Cyclization 864
- 1,2-Oxazole-4-carboxylic Esters
- Synthesis 868
- 2-Oxoalkanoic Esters
- Synthesis 720, 1085 (7009)
- Reductive Arylation 762
- 3-Oxoalkanoic Esters
- Synthesis 381, 393
- *C*-Alkylation 524 (6899)
- Cyclization Reactions 259, 616
- Reduction 605
- 4-Oxoalkanoic Esters
- Synthesis 81 (6799), 381
- 5-Oxoalkanoic Esters
- Synthesis 286 (6844)
- 4-Oxo-2-alkenoic Esters
- Synthesis 81 (6799), 280 (*Z*), 392
- 3-Oxo-4-alkenoic Esters
- Cyclization Reactions 859
- 4-Oxo-5-alkenoic Esters
- Synthesis 179 (6835)
- 3-(3-Oxo-1-alkenyl)-alkanoic Esters
- Synthesis and Cyclization 663
- 2-Oxocycloalkanecarboxylic Esters
- Synthesis 1014
- 2-Oxo-3-cycloalkene-1-carboxylic Esters
- Synthesis 1014
- 2-Oxo-1,2-dihydropyridine-4-propenoic Esters
- Synthesis 488
- 4-Oxo-1,4-dihydroquinoline-2-carboxylic Esters
- Synthesis 150, 1122
- 3-Oxo-5-(1-nitro-2-oxocycloalkyl)-alkanoic Esters
- Rearrangement 707 (6943)
- 4-Oxo-4-(3-pyridinyl)-butenoic Esters
- Synthesis and Hydrolysis 926
- 5-Oxotetrahydropyrrol-2-ylidenacetic Esters
- Synthesis 618 (*E*)
- Polychloro-3-oxo-4,6-alkadienoic Esters
- Synthesis 710
- 3-Siloxyaminoalkanoic Esters
- Synthesis 83 (6808)
- 2-Silylalkanoic Esters
- Synthesis 627 (6932)
- 2-Thioacylaminobenzoic Esters
- Synthesis and Reactions 69

● Carboxylic Acid Hydrazides
- Synthesis from Esters 583
-*N*-Alkyl-*N*-nitrosoacetic Hydrazides
- Synthesis 311
- 2-Aminobenzoic Hydrazide
- Cyclization Reactions 1066
- Carboxylic α-Cyanobenzylidene-hydrazides
- Cyclization Reactions 146
- Carbocyclic *N*-Methylthiomethyl-*N'*-benzylidenehydrazides
- Synthesis 147
- *N*-Heterocyclic Carboxylic Hydrazides
- Synthesis 583
- Cyclization Reactions 160
● Carboxylic Acid Imides and Thio Analogs
- *N*-Thioacylcarboxamides
- Synthesis 946
● Carboxylic Acids
- Synthesis 624 (6923)
- Reduction 446 (6887), 793 (6956)
- Reductive Alkylation 526 (6905), 795 (6963)
- Reductive Arylation 795 (6963)
- 2-Acylamino-2-alkenoic Acids
- Synthesis 418
- 2-Acylaminobenzoic Acids
- Synthesis 69
- α-Acylaminocinnamic Acids
- Synthesis 990 (6989)
- 3,7-Alkadienoic Acids
- Synthesis and Esterification 876 (*E*)(*Z*)
- 10,12-Alkadiynoic Acids
- Synthesis 230
- Alkanoic Acids
- Synthesis 626 (6930)
- Cyclization Reactions 846
- 2-Alkenoic Acids
- Synthesis 82 (6804), 392
- Cyclization Reactions 353, 766
- 4-Alkenoic Acids
- Cyclization Reactions 835
- 5-Alkenoic Acids
- Synthesis 389
- 6-Alkenoic Acids
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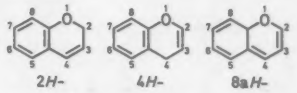

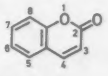
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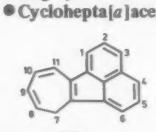
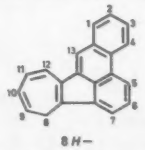


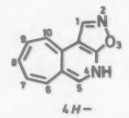
7*H*–

- 6b,8,9,10,11,11a-Hexahydro-7*H* Der.
- Ring Synthesis 161, 1122
- Cyclohepta[*e*]acephenanthrylene



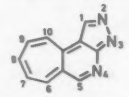
8*H*–

- 7b,9,10,11,12,12a-Hexahydro-8*H* Der.
- Ring Synthesis 161
- Cyclohepta[*d*][1,2]oxazolo[5,4-*b*]pyridine

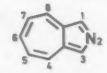


4*H*–

- 5-Oxo-5,6,7,8,9,10-hexahydro-4*H* Der.
- Ring Synthesis 1052
- Cyclohepta[*d*]pyrazolo[3,4-*b*]pyridine



- 5-Oxo-3,4,5,6,7,8,9,10-octahydro Der.
- Ring Synthesis 1052
- Cyclohepta[*c*]pyrrole



- 6-Amino- and 6-Alkylthio- Der.
- Synthesis 120
- 6-Aminocyclohepta[*c*]pyrrolium Salts
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- Cycloheptenes
- 1-Arylcycloheptenes
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- Anellation Reactions 77 (6786)
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- 3-Alkylidenecyclohexanols
- Ring Synthesis 794 (6960)
- 4,4-Bis[phenylsulfonyl]-cyclohexanones
- Synthesis 757
- Cyclohexenes
- Ring Synthesis 362 (6856), 443 (6878)
- 1-Acylcyclohexenes
- Ring Synthesis 77 (6786)
- 4,4-Bis[phenylsulfonyl]-cyclohexenes
- Ring Synthesis 757
- 2-Cyclohexenones
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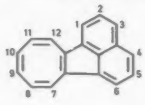
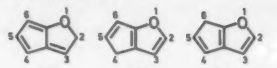
- Anellation Reactions 77 (6786)
- Ring Cleavage 623 (6922)
- 4-Iminiomethylcyclohexene Salts
- Ring Synthesis 944
- Cycloocta[*a*]acenaphthylene

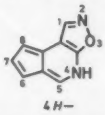


- 6b,7,8,9,10,11,12,12a-Octahydro Der.
- Ring Synthesis 161
- Cyclooctanones
- Ring Synthesis 1086 (7013)
- Cyclopenta[*b*]furan



2*H*– 4*H*– 6*H*–

- 3a,4,5,6a-Tetrahydro-6*H* Der.
- Ring Synthesis 455, 465
- Hexahydro Der.
- Ring Synthesis 450
- Cyclopentanes
- 1-Amino-1-cyanocyclopentanes
- Ring Synthesis 127
- Cyclopentanols
- Ring Synthesis 988 (6981)
- 2-Oxocyclopentanecarboxylic Esters
- Ring Synthesis 1009
- Ring-Fused Cyclopentanones
- Ring Synthesis 529 (review)
- Cyclopenta[*d*][1,2]oxazolo[5,4-*b*]pyridine



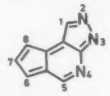
4*H*–

- 5-Oxo-5,6,7,8-tetrahydro-4*H* Der.
- Ring Synthesis 1052
- Cyclopenta[*b*]pyran

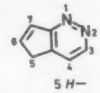
- 4,4a,5,6,7,7a-Hexahydro Der.
- Ring Synthesis 455
- Octahydro Der.
- Ring Synthesis 458, 459
- Cyclopenta[*c*]pyran

- 3-Alkoxyoctahydro Der.
- Ring Synthesis and Oxidation 708 (6948)
- Cyclopenta[*c*]pyrazole

- 1(2),4,5,6-Tetrahydro Der.
- Ring Synthesis 464
- Cyclopenta[*d*]pyrazolo[3,4-*b*]pyridine

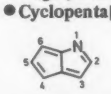


- 5-Oxo-3,4,5,6,7,8-hexahydro Der.
- Ring Synthesis 1052
- Cyclopenta[*c*]pyridazine



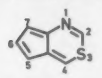
5*H*–

- 6,7-Dihydro-5*H* Der.
- Ring Synthesis 464
- Cyclopenta[*b*]pyrrole



- 3,3a,4,5,6,6a-Hexahydro Der.
- Ring Synthesis 455, 462

● Cyclopenta[*d*][1,3]thiazine



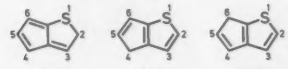
- 4-Thioxo-1,2,4,5,6,7-hexahydro Der.
- Ring Synthesis 799

● Cyclopenta-1,3-thiazole

4*H*-

- 5,6-Dihydro-4*H* Der.
- Ring Synthesis 467

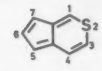
● Cyclopenta[*b*]thiophene



2*H*- 4*H*- 6*H*-

- 3a,4,5,6a-Tetrahydro-6*H* and Hexahydro Der.
- Synthesis 453, 454, 456

● Cyclopenta[*c*]thiopyran



- Ring Synthesis 262

● Cyclopentenes
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- Acylcyclopentenes
- Ring Synthesis 77 (6786), 626 (6929)
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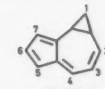
- Synthesis 691
- Ring-Fused Cyclopentenes and Cyclopentenones
- Ring Synthesis 529
- Spiro-Substituted Cyclopentenes
- Ring Synthesis 531

● Cyclopropa[*e*]azulene



1a,7b-Dihydro-1*H*-

- Octahydro Der.
- Ring Synthesis 637

● Cyclopropanediide Salts
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- Ring Synthesis 127
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● Cyclopropenide Salts
- Synthesis 686, 752

● Cyclopropylium Salts
- Diaminocyclopropylium Salts
- Reactions with Cyanamide and Malononitrile 686

● Cycloundecanones
- Ring Synthesis 286 (6843)

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- Synthesis 686, 752

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- *vic*-Chlorodeuterioalkanes 960

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- *N*-Benzylidene-1,2-dicyanoethene-1,2-diamines
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- *vic*-Diaminoalkanes
- Synthesis 793 (6955), 794 (6958)
- 1,3-Diaminoalkanes
- Synthesis 784
- 1,ω-Diaminoalkanes
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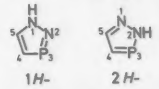
- *N*-Diphenylmethylene-1,2-diaryl-1,2-ethanediamines
- Synthesis 1038

● 1,5-Dianion Equivalents 523 (6895)

● 1,2,3-Diazaphosphole



1*H*- 2*H*-

- 1,2,3-Diazaphospholes
- Arylsulfenylation and Halogenation 591
- 4-Arylthio- and 4-Halo-1,2,3-diazaphospholes
- Synthesis 591

● Diazenes (Azo Compounds)
- (1-Alkenyl)-aryldiazenes
- Reaction with Anilines 422
- 3-Alkoxycarbonylazo-2-alkenoic Esters
- Cyclization Reactions 873
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- 1-Arylazoalkyl Isocyanates and Isothiocyanates
- Synthesis 315
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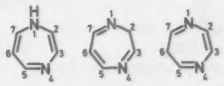
- Synthesis 276
- Arylazopyrazoles
- Synthesis 276
- 3-Arylsulfonylazo-2-alkenoic Esters
- Cyclization Reactions 874

● 1,4-Diazepine



1*H*- 4*H*- 6*H*-

- 5-Oxohexahydro-1,4-diazepine-1-oxyls
- Ring Synthesis 913

● Diazo Compounds
- 1-Diazoalkyl Alkadienyl Ketones
- Intramolecular Cyclization 530
- Diazomethyl 2-Alkenyl Ketones
- Cyclization Reactions 550
- Diazomethyl Aryloxymethyl Ketones
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- 1-Diazo-2,2,2-trifluoroethane
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- Trimethylsilyldiazomethane
- Synthesis 84 (6810)

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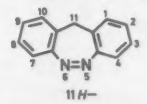
- Reaction with Phenacylidenedimethylsulfuranes 590

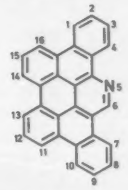
● Dibenzo[*c,f*][1,2]diazepine



11*H*-

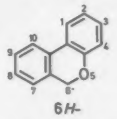
- Ring Synthesis 719

● Dibenzo[*c,i*]phenanthro[1,10,9,8-*anmlk*]-phenanthridine and Derivatives



- Ring Synthesis 270

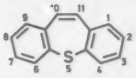
● Dibenzo[*b,d*]pyran



6*H*-

- 7,8-Dihydro-6*H* Der.
- Ring Synthesis 506

● Dibenzo[*b,f*]thiepin



- 6,7,8,9-Tetrahydro- and 11-Oxo-6,7,8,9,10,11-hexahydro Der.
- Synthesis 267

● Dicarboxylic Acid Esters
- Acetylenedicarboxylic Esters
- Cyclization Reactions 149
- 2-Alkoxycarbonylpyridine-3-acetic Esters
- Synthesis 930
- α-(2-Alkoxycarbonyl-3-thienyloxy)-acetic Esters
- Synthesis and Hydrolysis 847
- Aminomethylenebutanedioic Esters
- Cyclization Reactions 157

- 2-Cyano-2-pentenedioic Esters
- Cyclization Reactions 62
- Fluorene-9,9-dipropanoic Esters
- Synthesis 164
- Oxalic Esters
- Cyclization Reactions 150
- 2,3-Pentadienedioic Esters
- Cyclization Reactions 930

● Dicarboxylic Acid Imides and Thio Analogs
- *N*-(2-Alkenyl)-phthalimides
- Synthesis 40
- *N*-Alkylthio- and *N*-Arylthiosuccinimides
- Synthesis 1037

● Dicarboxylic Acids
- 2,3'-Aminodialkanoic Acids
- Synthesis 914
- 2,6-Diaminoheptanedioic Acid
- Synthesis 127
- α-(2-Carboxy-3-thienyloxy)-acetic Acids
- Synthesis and Decarboxylation 847

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- Synthesis 361 (6854) (*E,E*), 391, 523 (6895)
- Dimerization 1023
- 1,3-Alkadienes
- Synthesis 794 (6959) (*E*), 893 (6972) (*E*) (*Z*)
- 1-Bromobutadiene
- Synthesis 885

● Dienes (non-conjugated)
- 1,5-Alkadienes
- Synthesis 891 (6969), 933
- Cyclization Reactions 443 (6878)
- 3-(1-Hydroxyalkyl)-1,4-alkadienes
- Synthesis 174 (6818)

● Dihydrazino Sulfides
- Synthesis 833

● Diketene
- Reaction with Alkylmagnesium Halides 82 (6804)

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- 1,3-Alkanediones
- Synthesis 381, 647
- *C*-Acylation 623 (6920)
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- Cyclization Reactions 259, 616
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- Synthesis 375, 381, 560, 691, 922
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- 1,5-Alkanediones
- Synthesis 286 (6844), 377, 603, 922, 1084 (7006)
- Cyclization Reactions 597, 1084 (7006)
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- Synthesis 922
- Benzil
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- *vic*-Diketones
- Synthesis 707 (6945), 720, 791 (6950)
- Cyclization Reactions 553
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- 2,2'-Dioxobi-cyclohexyl
- Synthesis 721
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- Azaalkanedinitriles
- Reduction 782
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- Synthesis 127
- Hexanedinitriles
- Cyclization Reactions 351
- Pentanedinitriles
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● Diols
- Cyclophosphorylation 408
- 2-Acylamino-1-aryl-1,3-propanediols
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- *vic*-Alkanediols
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- Synthesis 605
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- 2-Amino-1,3-alkanediols
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- 7-Benzyloxy-3,6,9,12-tetraoxa-1,14-tetradecanediol
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● 2,7-Dioxabicyclo[3.2.1]octane

- Ring Synthesis 471

● 1,3,2-Dioxaphosphole

- 2-Alkoxy-1,3,2-dioxaphospholanes
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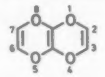
● 1,3-Dioxin

- 1,3-Dioxans
- Ring Synthesis 31, 180 (6838)

● 1,4-Dioxin

- 2,3-Dialkoxy-1,4-dioxans
- Synthesis 774

● 1,4-Dioxino[1,4]dioxin



- Hexahydro Der.
- Ring Synthesis 774

● 1,3-Dioxole

- 1,3-Dioxolanes
- Ring Synthesis 31, 180 (6838)

● Diselenides
- Synthesis 439

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- 1,2-Diselenolanes
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● 1,3-Diselenole

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● 2,6-Dithiabicyclo[3.1.1]heptanes

- Ring Synthesis 470

● 1,3,2,4-Dithiadiphosphetane

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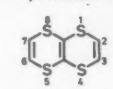
● 1,3-Dithietanes

- Bis[diphenylmethylene]-1,3-dithietane
- Ring Synthesis 801
- Dibenzylidene-1,3-dithietanes
- Ring Synthesis 815

● 1,4-Dithiino[2,3-*b*][1,4]dithiin



- Ring Synthesis 820

● Dithiocarbamic Acid Esters
- Synthesis 805, 809
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● Dithiocarbonic Acid Esters
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● Dithiocarboxylic Acid Esters
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● 1,3-Dithiole

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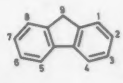

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- 2-Alkoxytetrahydrofurans
- Ring Synthesis 695, 708 (6948)
● Furazan

- Furazan *N*-Oxides (Furoxans)
- Ring Synthesis 720
● Furo[2,3-*b*]furan

- 2-Oxo-2,3,3a,6a-tetrahydro Der.
- Ring Synthesis 64
● Furo[3,2-*c*]pyran

4*H*–
- 2-Hydroxy- and 2-Oxohexahydro Der.
- Ring Synthesis and Reactions 473
● Furo[3,4-*b*]pyridine

- 5-Oxo-1,4,5,7-tetrahydro Der.
- Ring Synthesis 617
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2*H*–

- 2,6-Dioxo-3,31,6,6a-tetrahydro-2*H* Der.
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- *C*-(1-Acylaminoalkylation) 85 (review)
- *C*-Methyl-*N*-heteroarenes
- Reaction with Benzaldehydes 705 (6937)
● *O*-Heterocyclic Compounds, General
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- Synthesis 876
● Homoneric Acid and Esters
- Synthesis 876
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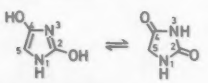

- Cyclization Reactions 270
● Hydrazines
- *N,N*-Disubstituted Hydrazines
- Synthesis 987 (6980)
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- Bis[2-hydroxybenzylidenehydrazino] Sulfides
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- Dialkylhydrazones of Arylsulfinylmethyl Ketones
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- Dialkylhydrazones of 2-Hydroalkyl Ketones
- Synthesis and Cleavage 702
- Dihydrazones of *vic*-Dicarbonyl Compounds
- Synthesis and Oxidative Cleavage 791 (6950)
- 2-Hydroxybenzaldehyde *N'*-(2-Hydroxyethylthio)-hydrazones
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- α-Methylenealdehyde and α-Methyleneketone Hydrazones
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- Synthesis 217
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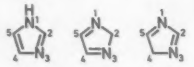
- Synthesis 124
- 2-Siloxyaminoalkanoic Esters
- Synthesis 83 (6808)

● Imidazole



2*H*- 4*H*-

- 2-Aryl-4,5-dicyanoimidazoles
- Ring Synthesis 1057
- 2-Chloro-4,5-dihydroimidazole
- Reactions 170
- 2,4-Dioxotetrahydroimidazoles
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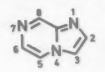
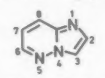
- 2-Oxo-1-(2-quinolinyl)- and 2-Oxo-1,3-bis[2-quinolinyl]-tetrahydroimidazoles
- Synthesis 170
- 2-Thioxotetrahydroimidazoles
- Ring Cleavage Reactions 805
● Imidazo[1,2-*b*]pyrazine, 3-Acyl-

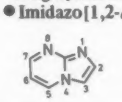


- Ring Synthesis 263
● Imidazo[1,2-*b*]pyridazine, 3-Acyl-

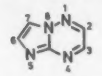


- Ring Synthesis 263
● Imidazo[1,2-*a*]pyridine, 3-Acyl-

- Ring Synthesis 263
● Imidazo[1,2-*a*]pyrimidine, 3-Acyl-



- Ring Synthesis 263
● Imidazo[1,2-*b*][1,2,4]triazine, 7-Acyl-



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- Aziridine Formation with Diazoalkanes 924
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- Synthesis 944
- 1-Cyclopentadienylmethaniminium Salts, 5-Aminomethylene-
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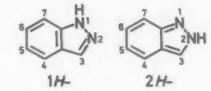
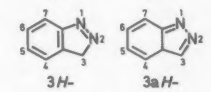
● Indazole



1*H*- 2*H*-



3*H*- 3a*H*-

- Indazoles
- Synthesis 982
- 4-Oxo-4,5,6,7-tetrahydroindazoles
- Ring Synthesis, Reduction, and Further Reactions 982
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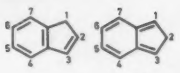
● Indene



2*H*-

- 2,4,5,6,7,7a-Hexahydroindenes
- Ring Synthesis 535
- 4-Hydroxy-2,3,4,5,6,7-hexahydroindenes
- Ring Synthesis 648
- 1-Oxo-3a,4,5,6,7,7a-hexahydroindenes
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- Ring Synthesis 77 (6786)
- 2-Oxo-2,4,5,6,7,7a-hexahydroindenes
- Ring Synthesis 537, 541
- 5-Oxo-3a,4,5,6,7,7a-hexahydroindenes
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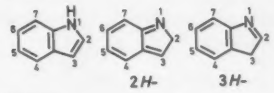
● Indole



2*H*- 3*H*-

- Indoles
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- 2-Cyano-3-oxo-2,3-dihydroindoles
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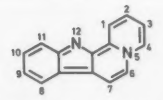
- Ring Synthesis 1061

● Indolo[2,3-*a*]quinolizine



- 4-Oxo-2,3,4,6,7,12-Hexahydro Der.
- Ring Synthesis 353

● Iodine(III)- and Iodine(V) Compounds, Organic
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- α-Iodoaldehydes and -ketones
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- Iodoalkanes
- Synthesis 1080 (6993)
- 1-Iodo-1-alkenes
- Synthesis 919 (*Z*)
- 1-Iodo-2-alkenes
- Synthesis 608 (*E*, *Z*)
- 2-Iodo-1-alkenes
- Synthesis 174 (6817)
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- Synthesis 712

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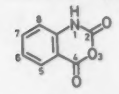
● Iron Complexes
- Carbon Disulfide-Carbonyliron Complexes
- Synthesis and Reactions 819

● Isatoic Anhydride



see: 3,1-Benzoxazine

● Isocyanates
- Cyclization Reactions 770
- 1-Arylazoalkyl Isocyanates
- Synthesis 315
- Aryl Isocyanates
- Cyclization Reactions 598, 719, 986
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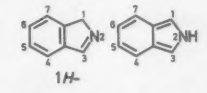
- Synthesis 631

● Isoindole



1*H*-

- 1-Oxo-1,3-dihydroisoindoles
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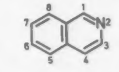
● Isoquinoline



- 1-(3-Pyridinyl)-isoquinolines
- Synthesis 936
- 2-(2-Oxy-3,4-dioxocyclobutenyl)-isoquinolinium Betaines
- Synthesis 436
- 3-Oxo-2,3-dihydroisoquinolines
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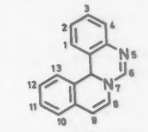
- Synthesis 743

● Isoquino[2,1-*c*]quinazoline



13b *H*−

- 6-Oxo-5,6,8,9,10,11-hexahydro-13b*H* Der.
- Ring Synthesis 1071

● Isoselenocyanates
- Acyl Isoselenocyanates
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● Isothiocyanates
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- Ketene *O,O*-Disilyl Acetals
- Cyclopropanation 622 (6919)
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- Cyclization Reactions 1070

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- (2-Pyridinylamino)-methylenemalonic Esters
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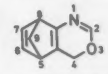

5,8-Dihydro-4*H*–

- 4-Oxo-4a,5,8,8a-tetrahydro-4*H* Der.
- Ring Synthesis and Transformation 345
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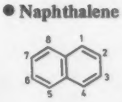

- 1-Oxo-1,2,3,4,4a,5,6,7-octahydronaphthalenes
- Ring Synthesis 77 (6786)
- 2-Oxo-2,3,4,4a,5,6,7,8-octahydronaphthalenes
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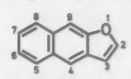

- Naphtho[2,3-*b*]furans
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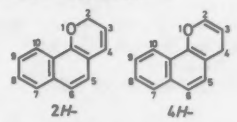

2*H*- 4*H*-

- 4-Oxo-4*H* Der.
- Ring Synthesis 1076
- 3-Oxo-3,4-dihydro-2*H* Der.
- Ring Synthesis 268
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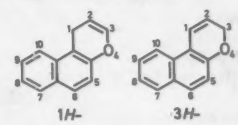
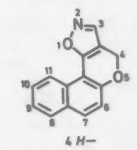


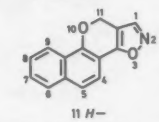
1*H*- 3*H*-

- 3-Amino-1*H* Der.
- Ring Synthesis 159
- 2-Oxo-2,3-dihydro-1*H* Der.
- Ring Synthesis 268
- Naphtho[1′,2′:5,6]pyrano[3,4-*d*][1,2]-oxazole



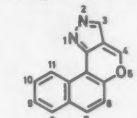
4*H*–

- Ring Synthesis 1063
- Naphtho[2′,1′:5,6]pyrano[3,4-*d*][1,2]-oxazole

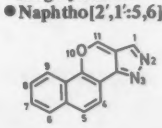


11*H*–

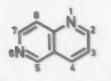
- Ring Synthesis 1063
- Naphtho[1′,2′:5,6]pyrano[4,3-*c*]pyrazole



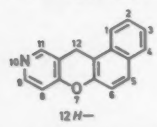
- 1,4-Dihydro Der.
- Ring Synthesis 1063
- Naphtho[2′,1′:5,6]pyrano[4,3-*c*]pyrazole



- 3,11-Dihydro Der.
- Ring Synthesis 1063
● 1,6-Naphthyridine



- 6-Hydroxy-5,6,7,8-tetrahydro-1,6-naphthyridines
- Ring Synthesis 909
● Naphtho[1,2-*b*]pyrido[3,4-*e*]pyran



12*H*—
- 7a,8,9,10,11,11a-Hexahydro-12*H* Der.
- Ring Synthesis 910
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- Synthesis and Reactions 876
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● Niobium Complexes formed with CS_2
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- 2-Acyloxyalkanenitriles
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- Cyclization Reactions 159
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- Michael Additions 164
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- Cyclization Reactions 768
- Alkoxy-(amino)-acetonitriles
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- 2,4-Dialkylamino-5-oxo-1,3-oxathiolanes
- Ring Synthesis 595
- 2-Thioxo-1,3-oxathiolanes
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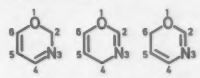
● 1,3-Oxazine



2*H*- 4*H*- 6*H*-

- 4*H*-1,3-Oxazines
- Ring Synthesis 192
- 6-Oxo-6*H*-1,3-oxazines
- Ring Synthesis 345
- 6-Thioxo-6*H*-1,3-oxazines
- Ring Synthesis 799
- 5,6-Dihydro-4*H*-1,3-oxazines
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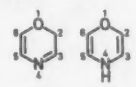

2*H*- 4*H*-

- 3,3,5,5-Tetraalkylmorpholines and 2-Oxo Der.
- Ring Synthesis 122
● 1,2-Oxazole

- 1,2-Oxazoles
- Ring Cleavage 5
- 3-Amino-1,2-oxazoles
- Synthesis 247
- 5-Amino-1,2-oxazoles
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- 5-Amino-4-(1-cycloalkenyl)-1,2-oxazoles
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- Reductive Ring Cleavage 1082 (7001), 1083 (7002)
- 4-Hydrazono-5-oxo-4,5-dihydro-1,2-oxazoles
- Ring Synthesis 17
- Tetrahydro-1,2-oxazoles
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- Ring Synthesis 990 (6988)
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- Synthesis 1048
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- 5-Oxo-4,5-dihydro-1,3-oxazoles
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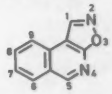
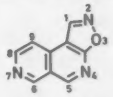
- 2-Trichloromethyl-4-(1-iodoalkyl)-4,5-dihydro-1,3-oxazoles
- Ring Synthesis and Cleavage 79
- 2-Thioxotetrahydro-1,3-oxazoles
- Ring Synthesis 806
● [1,2]Oxazolo[5,4-*c*]isoquinoline



- 5-Oxo-4,5,6,7,8,9-Hexahydro Der.
- Ring Synthesis 1052
● [1,2]Oxazolo[3,4-*c*][2,7]naphthyridine



- 5-Oxo-4,5,6,7,8,9-hexahydro Der.
- Ring Synthesis 1052
● Oxime Derivatives
- *O*-Aryloximes
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2 *H*–

- 4-Oxohexahydrooxocins
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Penam

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- 2,5-Dioxooctahydropentalenes
- Ring Synthesis 553
- 5-Methylene-1-oxooctahydropentalenes
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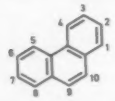

- 1,2,3,4-Tetrahydrophenanthrenes
- Ring Synthesis 267
- 4-Oxo-1,2,3,4,9,10-hexahydrophenanthrenes
- Ring Synthesis 649

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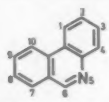

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- *C*-Alkylsulfenylation 117
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- (Alkylthio)-phenols
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- *N,N'*-Bis[2-hydroxyphenyl]-arylmethanediamines
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- 4,5-Dihydro-1,3-oxazole-4-phosphonic Esters
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- 1-Formylamino-2-hydroxyalkanephosphonic Esters
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- 1-Alkylthio(Arylthio)-cyclopropyltriphenylphosphonium Salts
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- 2-Oxoalkyltriphenylphosphonium Salts
- Synthesis and Dephosphonation 706 (6941)
- 1,1'-Oxy-bis[alkyltriarylphosphonium] Salts
- Synthesis 1040
- Tetraarylphosphonium Salts
- Synthesis 716

● Phosphonothioic Acid Esters
- Alkylthiothioxomethanephosphonothioic *O,O*-Esters
- Synthesis 816

- *O,S*-Dialkyl Alkanephosphonothioates
- Synthesis 816
● Phosphonous Acid Esters
- *P*-Arylation 778
● Phosphoranes
- 1-Alkoxycarbonylalkylidenetriphenylphosphoranes
- Reaction with Carbonyl Compounds 864
- Reaction with Epoxides 636
- 2-Alkynylidenetriphenylphosphoranes
- Synthesis and Hydrolysis 243
- 4-Amino-5-oxo-4-triphenylphosphoranylidenamino-4,5-dihydro-1,2,4-triazines
- Synthesis and Cyclization 983
- 1-Arylseleno-2-oxoalkylidenetriphenylphosphoranes
- Synthesis and Thermolysis 240
- Bis[perfluoroacyl]-methylenetriphenylphosphoranes
- Synthesis and Cleavage 924
- Diacylmethylenetriphenylphosphoranes
- Synthesis 35, 924
- Thermolysis 35
- Diethoxyethenylidenetriphenylphosphorane
- Reaction with 1,2-Cycloalkanediones 528 (6912)
- 2-Oxo-3-alkoxycarbonylalkylidenetriphenylphosphoranes
- Cyclization Reactions 363 (6859)
- 2-Oxoalkylidenetriphenylphosphoranes
- Synthesis 361 (6853), 791 (6950)
- Conversion into Alkynes 361 (6853)
- Oxidative Cleavage 791 (6950)
- Reaction with Aldehydes 620
- Reaction with Triphenylphosphine Dibromide 527 (6910)
- Perfluoroacylmethylenetriphenylphosphoranes
- Synthesis and Reaction with Acyl Chlorides 924
- Phenacylidenetriphenylphosphoranes
- Reaction with Acyl Chlorides 35
- 2-(Trimethylsilyl)-ethoxymethylenetriphenylphosphorane
- Synthesis and Reactions 173 (6815)
● Phosphoric Acid Amides
- Synthesis 413, 1122
● Phosphoric Acid Ester Betaines
- Synthesis 870
● Phosphoric Acid Esters
- Alkanediyl Hydrogen Phosphates
- Synthesis 408
- 2-Alkenyl Dialkyl Phosphates
- *C*-Alkylation with *CH*-Acidic Compounds and *C*-Amination with Amines 78 (6788)
- 2-Alkenyl Diammonium Phosphates
- Synthesis 404
- 2-Alkenyl Diaryl Phosphates
- Reaction with LiCl or LiBr 841
- 2-Chlorophenyl Bis[2-cyanoethyl] Phosphate
- Synthesis and Reactions 334
- Cyclic Phosphodiesters of Nucleosides
- Synthesis 408
- Dialkyl 1-Cyanoalkyl Phosphates
- Synthesis and Dephosphorylation 1084 (7007)
● Phosphoroamidic Acid Esters
- Synthesis 223, 332
- Ribonucleoside 3′,5′-Cyclic *N,N*-Dimethylphosphoroamidates
- Synthesis 27
● Phosphoroamidothioic Acid Esters
- 1-(Dialkoxythiophosphinyl)-4-oxo-1,4-dihydroquinolines
- Synthesis 492
● Phosphorochloridic Acid Esters
- Reaction with Oxiranes + Phosphorous Esters 418
● Phosphorochloridothioic Acid Esters
- Reaction with 4-Hydroxy- and 4-Mercaptoquinolines 492
● Phosphorocyanidic Acid Esters
- Reaction with Aldehydes and Ketones 1084 (7007)
● Phosphoroimidous Amides
- Synthesis 900
● Phosphorous Acid Esters
- Alkyl and Aryl Ammonium Hydrogen Phosphites
- Synthesis 410
- Alkyl and Aryl 2,2,2-Trifluoroethyl Hydrogen Phosphites
- Synthesis 410
- Ammonium 2,2,2-Trifluoroethyl Hydrogen Phosphite
- Synthesis and Reactions 410
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- Synthesis 788
● Platelet-Activating Factor (PAF), Azathia Analogs
- Synthesis 870
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- Synthesis and Reactions 819
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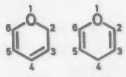
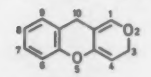
- Linear Tri- and Tetraamines
- Synthesis 782
● Polyenes (conjugated)
- Synthesis 523 (6895), 794 (6959) (*E, E*)
● Polyketones
- 1,3,5,7-Alkanetetrones and Homologs
- Synthesis 623 (6920)
● Polynitriles
- Bis[1,2-dicyano-2-mercaptovinyl] Sulfides
- Synthesis 812
● Prostacyclines
- Synthesis 449 (review)
● Prostaglandines and Relatives
- Synthesis 449 (review)
● Pseudocarbon Anions
- Synthesis 686, 752
● Pyran



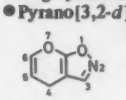
2*H*- 4*H*-

- 2-Amino-5-cyano-4*H*-pyrans
- Ring Synthesis 20
- 4-Hydroxy-2-pyrones
- *C*-Alkylation 430
- 4-Thioxo-4*H*-pyrans
- Ring Synthesis 21
- Pyrylium Salts
- Ring Transformation 71
- 2-Alkoxy-5-acyl-3,4-dihydro-2*H*-pyrans
- Ring Synthesis 448 (6893)
- 4-Oxo-3,4-dihydro-2*H*-pyrans
- Ring Synthesis 21
- 2,2,3,3-Tetraalkoxy-3,4-dihydro-2*H*-pyrans
- Ring Synthesis 21
- 2-Oxo-5,6-dihydro-2*H*-pyrans
- Ring Synthesis 998
- Cyclohexane⟨spiro-6⟩-3-cyano-2-oxo-5,6-dihydro-2*H*-pyrans
- Ring Synthesis 1075
- 2,2-Bis[alkylthio]-4-oxotetrahydropyrans
- Ring Synthesis 473
● Pyrano[4,3-*b*][1]benzopyran



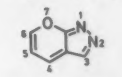
3*H*,10*H*-

- 3-Alkoxy-10-oxo-4,4a-dihydro-3*H*,10*H* Der.
- Ring Synthesis and Cleavage 614, 1123
● Pyrano[3,2-*d*]-1,2-oxazole

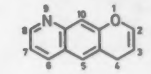


4*H*-

- Ring Synthesis 20
● Pyrano[2,3-*c*]pyrazole



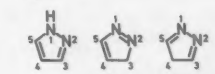
- 1,4-Dihydro Der.
- Ring Synthesis 20
● Pyrano[3,2-*g*]quinoline



4*H*-

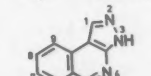
- 4,6-Dioxo-6,9-dihydro-4*H* Der.
- Ring Synthesis 150
● Pyrazine

- 3,6-Dialkyl-2,5-dimethoxy-3,6-dihydropyrazines ("Bis-lactim Ethers")
- Synthesis and Ring Cleavage 271
- 3,6-Dialkyl-2,5-dioxohexahydropyrazines
- Ring Synthesis 271 (3*S*, 6*S*)
- 1,3,3,5,5-Pentasubstituted 4-Hydroxy-2-oxohexahydropyrazines
- Synthesis 124
● Pyrazole



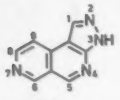
3*H*- 4*H*-

- 5-Amino-4-(1-cycloalkenyl)-pyrazoles
- Synthesis and Cyclization Reactions 1050
- 3-Aminopyrazoles
- Ring Synthesis 22, 276
- 5-Aminopyrazoles
- Ring Synthesis 12–15
- 4-Cyanopyrazoles
- Ring Synthesis 13
- 4-Alkylidene-5-oxo-4,5-dihydropyrazoles
- Synthesis and Ring Transformation 972
- 4,4-Dibromo-5-oxo-4,5-dihydropyrazoles
- Synthesis and Reactions 972
- 2,5-Dioxo-4,5-dihydropyrazoles
- Synthesis and Reactions 972
- 5-Oxo-4-(5-oxo-4,5-dihydropyrazol-4-ylidenamino)-4,5-dihydropyrazoles
- Synthesis 972
● Pyrazolo[3,4-*d*]isoquinoline



3*H*-

- 5-Oxo-4,5,6,7,8,9-hexahydro-3*H* Der.
- Ring Synthesis 1052
● Pyrazolo[3,4-*c*][2,7]naphthyridine

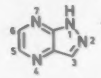


3 *H*–

- 5-Oxo-4,5,6,7,8,9-hexahydro-3*H* Der.
- Ring Synthesis 1052
● Pyrazolo[1,5-*c*][1,3]oxazine

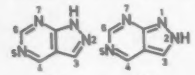
7*H*-

- 3,3a-Dihydro-7*H* Der.
- Ring Synthesis 71
● Pyrazolo[3,4-*b*]pyrazine



- Ring Synthesis 149, 1122
● Pyrazolo[1,5-*a*]pyrimidine

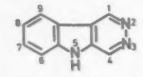
- Ring Synthesis 12, 13
● Pyrazolo[3,4-*d*]pyrimidine



1*H*- 2*H*-

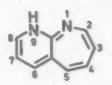
- 4,6-Dithioxo-4,5,6,7-tetrahydro-1*H* Der.
- Ring Synthesis 806
● Pyridazine

- 3-Amino-1,2-dihydropyridazines
- Synthesis and Ring Transformation 62
- 3-Imino-2,3-dihydropyridazines
- Ring Synthesis and Transformation 62
- 2-Oxo-2,3-dihydropyridazines
- Ring Synthesis 62, 972
- 3-Oxo-1,2,3,6-tetrahydropyridazines
- Synthesis and Ring Transformation 62
- 3-Oxo-2,3,4,5-tetrahydropyridazines
- Ring Synthesis 786
● Pyridazino[4,5-*b*]indole



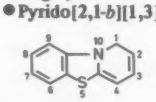
- 4-Oxo-3,4-dihydro-5*H* Der.
- Ring Synthesis 160
● Pyridine

- 3-Alkoxycarbonyl-4-amino-5-cyano-pyridines
- Ring Synthesis 976
- 3-Alkoxycarbonyl-2-aminopyridines
- Anellation Reactions 586
- 2-Alkoxycarbonylpyridine-3-acetic Esters
- Ring Synthesis 930
- 2-Alkylthiopyridines
- Synthesis 891 (6968)
- 4-Alkylthiopyridines
- Ring Synthesis 800
- 2-Amino-6-alkoxy-5-cyano-3-arylsulfonylpyridines
- Ring Synthesis 768
- 2-Amino-3-cyano-5-thiocyanato-6-trichloromethylpyridines
- Ring Synthesis and Reactions 970
- Bipyridines
- Synthesis 736
- 3-(2-Thienyl)-pyridines
- Synthesis 936
- 1-Alkylidenaminopyridinium Salts
- Ring Synthesis 71
- Pyridinium Betaines
- Synthesis 436
- Pyridinium Diacylmethanides
- Synthesis and Ozonolysis 84 (6811)
- 2-(1-Alkenyl)- and 2-(1-Alkynyl)-1-alkoxycarbonyl-1,2-dihydropyridines
- Synthesis 448 (6894)
- 6-Amino-2-cyano-2-oxo-3-arylsulfonyl-1,2-dihydropyridines
- Ring Synthesis 768
- 4-Amino-2-oxo-1,2-dihydropyridines
- Synthesis 765
- 2-Oxo-1,2-dihydropyridines (2-Pyridones)
- Ring Synthesis 22
- 1,4-Dihydropyridines
- Ring Synthesis 22
- 4-Oxo-1,4-dihydropyridines (4-Pyridones)
- Synthesis and Reduction 485
- 1-(Triflyl-4-(α-tosylbenzylidene)-1,4-dihydropyridines
- Synthesis and Reactions 1039
- 3-Alkoxycarbonyl-2-alkoxycarbonylcyano-methylene-4-oxo-1,2,3,4-tetrahydro-pyridines
- Ring Synthesis and Anellation Reactions 976
- 6-Amino-2-alkoxycarbonylcyano-methylene-1,2,3,4-tetrahydropyridines
- Ring Synthesis 976
- 4-Oxo-1,2,3,4-tetrahydropyridines
- Synthesis 485
- 6-Amino-2-dicyanomethylene-1,2,3,4-tetra-hydropyridines
- Ring Synthesis 976
- 4-Amino-1,2,3,6-tetrahydropyridines
- Synthesis 902
- Piperidines
- Ring Synthesis 597
- 2-(1-Alkenyl)-piperidines
- Synthesis 627 (6933)
- 2,6-Dioxo-3-(2-nitrophenyl)-piperidines
- Ring Synthesis and Transformation 1061
- 4-Oxopiperidines (4-Piperidones)
- Ring Synthesis 895
- Sterically Hindered Piperidines
- Synthesis and Reactions 895 (review)
- 2,2,6,6-Tetramethyl-4-oxopiperidine (Triacetoneamine)
- Ring Synthesis 895
● Pyrido[2,3-*b*]azepine



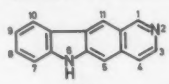
9 *H*–

- 5,8-Dioxo-5,8-dihydro-9*H* Der.
- Ring Synthesis 349
● Pyrido[2,1-*b*][1,3]benzothiazole



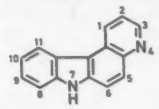
1 *H*–

- 1-Imino-1*H* and 1-Oxo-1*H* Der.
- Ring Synthesis 601
● Pyrido[4,3-*b*]carbazole



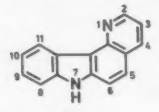
6*H*-

- 6*H*- and Octahydro-6*H* Der.
- Ring Synthesis 289 (review)
● Pyrido[2,3-*c*]carbazole



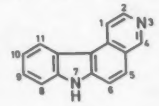
7 *H*–

- Ring Synthesis 293
● Pyrido[3,2-*c*]carbazole



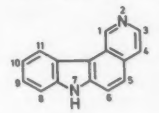
7 *H*–

- Ring Synthesis 293
● Pyrido[3,4-*c*]carbazole



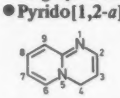
7 *H*–

- Ring Synthesis 293
● Pyrido[4,3-*c*]carbazole



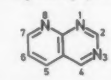
7 *H*–

- Ring Synthesis 293
● Pyrido[1,2-*a*]pyrimidine



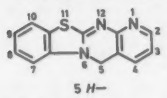
4*H*-

- 4-Oxo-4*H* Der.
- Ring Synthesis 152
- 3-Aminocarbonyl-4-oxo-6,7,8,9-tetra-hydro-4*H* Der.
- Synthesis 582
● Pyrido[2,3-*d*]pyrimidine



- 4-Amino-6-thiocyanato Der.
- Ring Synthesis 970
- 2,4-Dioxo-1,2,3,4-tetrahydro Der.
- Ring Synthesis 585
- 4-Oxo-2-thioxo-1,2,3,4-tetrahydro Der.
- Ring Synthesis 586
- 5,6,7,8-Tetrahydro Der.
- Ring Synthesis 226
- 2-Oxo-4-thioxo-1,2,3,4,5,6,7,8-octahydro Der.
- Ring Synthesis 704

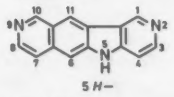
● Pyrido[2′,3′:4,5]pyrimido[2,1-*b*]-[1,3]benzothiazole



5 *H*–

- 5-Oxo-5*H* Der.
- Ring Synthesis 586

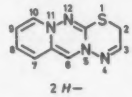
● Pyrido[3′,4′:4,5]pyrrolo[2,3-*g*]isoquinoline



5 *H*–

- Ring Synthesis 290 (review)

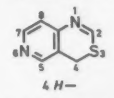
● Pyrido[2,1-*f*][1,3,4]thiadiazino[2,3-*c*]-[1,2,4]triazine



2 *H*–

- 6-Oxo-2*H*,6*H*-11-ium Salts
- Ring Synthesis 697

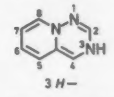
● Pyrido[4,3-*d*][1,3]thiazine



4 *H*–

- 2,4,5,7-Tetrahydro-1,2,5,6,7,8-tetrahydro-4*H* Der.
- Ring Synthesis 800

● Pyrido[2,1-*f*][1,2,4]triazine



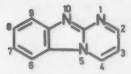
3 *H*–

- Betaines and Salts
- Ring Synthesis and Anellation Reactions 697

● Pyrimidine

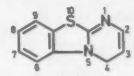
- 2-Alkoxy-4-aminopyrimidines
- Ring Synthesis 1046
- 2-Amino-4-alkoxy-6-(1,3-alkadienyl- or styryl)-pyrimidines
- Ring Synthesis 516
- 2-Aminopyrimidines
- Iodination 252
- 4-Aminopyrimidines
- Ring Synthesis 22
- 5-Cyanopyrimidines
- Ring Synthesis 9
- 2-Hydroxypyrimidines
- Ring Synthesis 193
- 2-(3-Pyridinyl)-pyrimidine
- Synthesis 936
- Pyrimidine *N*-Oxides
- *C*-Cyanation 681
- 5-Acyl-1,2,3,4-tetrahydropyrimidines
- Ring Synthesis 259
- 2-Thioxo-1,2,3,4-tetrahydropyrimidines
- Ring Synthesis 806
- 5-Cyano-4-hydroxy-2-thioxohexahydropyrimidines
- Ring Synthesis 862
- 2-Oxo- and 2-Thioxohexahydropyrimidines
- Ring Synthesis 860
- 5-Trifluoromethyl-2,4-dioxohexahydropyrimidines and 2-Thio Analogs
- Ring Synthesis 767

● Pyrimido[1,2-*a*]benzimidazole



- 4-Oxo-4,10-dihydro Der.
- Ring Synthesis 156

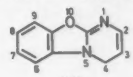
● Pyrimido[2,1-*b*][1,3]benzothiazole



4*H*-

- 4-Oxo-4*H* Der.
- Ring Synthesis 156

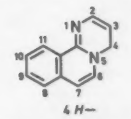
● Pyrimido[2,1-*b*][1,3]benzoxazole



4*H*-

- 4-Oxo-4H Der.
- Ring Synthesis 156

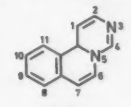
● Pyrimido[2,1-*a*]isoquinoline



4 *H*–

- 4-Oxo-4*H* Der.
- Ring Synthesis 156

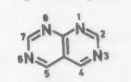
● Pyrimido[6,1-*a*]isoquinoline



11b *H*–

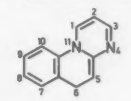
- 4-Oxo-1,2,3,4,6,7-hexahydro-11b*H* Der.
- Ring Synthesis 1071

● Pyrimido[4,5-*d*]pyrimidine



- 2,4-Dioxo-1,2,3,4-tetrahydro Der.
- Ring Synthesis 589

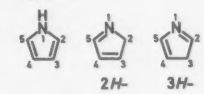
● Pyrimido[1,2-*a*]quinoline



6*H*-

- 1-Oxo-1*H* Der.
- Ring Synthesis 154

● Pyrrole



2*H*- 3*H*-

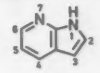
- Pyrroles
- Ring Synthesis 157, 610
- 2-Aminothiocarbonylation 69
- *C*-Silylation 929
- 1-Acylpyrroles
- Ring Synthesis and Reactions 368 (6874)
- 1-Alkoxycarbonylamino-3-aminocarbonylpyrroles
- Ring Synthesis 873
- 2-Alkoxy-3-cyanopyrroles
- Synthesis 62
- 2-Aminocarbonylpyrroles
- Synthesis 69
- 2-Aminocarbonyl-1-ureidopyrroles
- Ring Synthesis 671
- 2-Amino-3-cyanopyrroles
- Ring Synthesis 62
- 2-Aminothiocarbonylpyrroles
- Synthesis 69
- 1-Arylsulfonylamino-3-aminocarbonylpyrroles
- Ring Synthesis 874
- 2-Heterocyclic Substituted Pyrroles
- Synthesis and Reactions 68
- Pyrrolecarboxylic Esters
- *C*-(1-Acylaminoalkylation) 88, 101, 105
- *C*-Silylpyrroles
- Synthesis 929
- 2,5-Dihydropyrroles
- Ring Synthesis 192
- 2-Oxo-2,5-dihydropyrroles
- Ring Synthesis 62
- Pyrrolidines
- Ring Synthesis 180 (6836), 192
- 2-(1-Alkynyl)-pyrrolidines
- Synthesis 627 (6933)
- 5-Oxopyrrolidin-2-ylideneacetic Esters
- Ring Synthesis 618 (*E*)

● Pyrrolo[1,2-*c*]imidazole

1*H*-

- 1-Oxo-3-thioxotetrahydro Der.
- Ring Synthesis 21

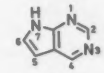
● Pyrrolo[2,3-*b*]pyridine



1*H*–

- *N*-Alkylation 740

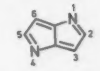
● Pyrrolo[2,3-*d*]pyrimidine



7*H*–

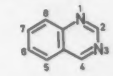
- 2-Oxo-4-thioxo-1,2,3,4,5,6-hexahydro-7*H* Der.
- Ring Synthesis 704

● Pyrrolo[3,2-*b*]pyrrole



- 2,5-Dioxooctahydro Der.
- Ring Synthesis 195

● Quinazoline



- 3-Amino-4-oxo-3,4-dihydroquinazolines
- Ring Synthesis 69, 1065, 1067
- 3-Amino-4-thioxo-3,4-dihydroquinazolines
- Reaction with Isothiocyanates 881
- 4-Oxo-2-(2-pyrrolyl)-3,4-dihydroquinazolines
- Ring Synthesis 69
- 3-(1,3-Benzothiazol-2-yl)-2,4-dioxo-1,2,3,4-tetrahydroquinazolines

- Ring Synthesis 520
● Quinoline

- 3-Alkoxycarbonylquinolines
- Ring Synthesis 180 (6839)
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- Synthesis 1058
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- Synthesis 736
- 3-Cyanoquinolines
- Ring Synthesis 22
- 3-(3-Pyridinyl)-quinolines
- Synthesis 937
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- Reaction with 2-Chloro-4,5-dihydroimidazole 170
- 1-Alkyl-4-aminoquinolinium Salts
- Synthesis 1059
- Quinolinium Betaines
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- 2-Oxo-1,2-dihydroquinolines
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- Ring Synthesis 306
- 4-Oxo-1,4-dihydroquinolines (4-Quinolones)
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- 2-Oxo-1,2,3,4-tetrahydroquinolines
- Ring Synthesis 862
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- Synthesis 685, 1123

● 1,2,3-Selenadiazole

- Ring Cleavage 660
- Ring Transformation 512
● Selenocarboxylic Acid Esters
- *Se*-Aryl Alkaneselenoates
- Synthesis 1045
● Selenoethers
- 1-Alkenyl Alkyl Selenides
- Synthesis 395
- 2-Alkenyl Aryl Selenides
- Synthesis 1044
- Alkyl Aryl Selenides
- Synthesis 1044
- 1-Alkynyl Aryl Selenides
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● Silanes
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- Reaction with Carbonyl Compounds 77 (6785)
- 1-Alkenyltrialkylsilanes
- Synthesis 288 (6850), 395, 727 (6931), 651, 1085 (7010) (*E*) (*Z*)
- *C*–*C* Coupling Reactions 385
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- Synthesis 816
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- Synthesis 783
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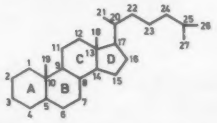

- Synthesis of the Steroid Skeleton 378, 637
- Corticosteroid 17α-Esters
- Synthesis 700
- Corticosteroid 17α,21-Cyclic Orthoesters
- Synthesis and Cleavage 700
- Corticosteroid[17α,16α-*d*]oxazolines
- Synthesis 281
- Hydroxysteroids
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- Oxosteroids
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- Synthesis 132
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● Streptindole (Synthesis) 872
● Styrenes (Synthesis) 173 (6813)
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- Reactions 773
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- *N*-Alkylthio- and *N*-Arylthiosuccinimides
- Synthesis 1037
- Aminothioxomethanesulfenamides
- Synthesis 809
● Sulfenic Acid Chlorides
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● Sulfilimines
- Reduction 317

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- Synthesis 876 (*Z*)
- 1-Alkenyl Aryl Sulfones
- Synthesis 214, 395
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- Synthesis 320
- Alkyl Aryl Sulfones
- Synthesis 214
- Alkyl Trifluoromethyl Sulfones
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- Synthesis 395
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- 1-Trifluoromethanesulfonyl-4-(α-tosylbenzylidene)-1,4-dihydropyridine
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- Reductive Cleavage 481
- Alkyl and Aryl Triflates
- Synthesis 1039
- 2,2,2-Trifluoroethyl Sulfonates
- Synthesis 1041
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● Sulfonium Salts
- Synthesis 716
- Alkyldiarylsulfonium Salts
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- 5-Oxoalkylsulfonium Salts
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● Sulfonothioic Acid Esters
- Synthesis 500
- Reaction with Methanephosphonic Esters 625 (6927)
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- 1-Alkenyl Aryl Sulfoxides
- Synthesis 395
- Reaction with Nitroalkanes 178 (6829)
- Bis[2,2-di(ethylthio)-ethenyl] Sulfoxide
- Synthesis 803
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- Dehydration 796 (6965)
- Dibenzyl Sulfoxide
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- 1-Methylsulfinyl-1-methylsulfonyl-1-alkenes
- Synthesis and Reactions 80 (6797)
● Sulfoximines
- Reduction 317
● Sulfurane *S*-Oxides
- Cyclization Reactions 852
● Sulfuranes
- Phenacylidenedimethylsulfuranes
- Reaction with Arenediazonium Salts 590
● Sulfuric Acid Esters
- Dopamine 4-*O*-Sulfate
- Synthesis 884
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- Synthesis 213
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● 1,2,4,5-Tetrathiane

- 3,6-Bis[2-oxoalkylidene]-1,2,4,5-tetrathianes
- Ring Synthesis 816
● Tetrathiooxalic Acid Esters
- Synthesis 820
● Tetrazanes
- Synthesis 719
● Tetrazenes
- Synthesis 899
● Tetrazole

- Ring Synthesis 683
● Thiabenzene
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● 2-Thiabicyclo[3.1.1]heptane

- Ring Synthesis 472
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- Ring Synthesis 470
● 1,2,3-Thiadiazole

- Ring Transformation 512
● 1,2,4-Thiadiazole

- 1,2,4-Thiadiazoles
- Ring Synthesis 805
- Bis[1,2,4-thiadiazol-5-yl] Disulfides
- Synthesis 807
● 1,3,4-Thiadiazole

- 1,3,4-Thiadiazoles
- Ring Synthesis 146
- 2,5-Dimercapto-1,3,4-thiadiazoles and Derivatives
- Ring Synthesis 810
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- Ring Synthesis 772
● Thialactones
- Macrocyclic Bis- and Tetrakis-thialactones
- Synthesis 140
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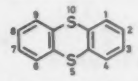
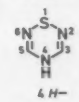
- Synthesis 839
● Thianthrene



- Ring Synthesis 818
● Thiaprostacyclines
- Synthesis 453
● 1,4,3-Thiaselenazine

- Ring Synthesis and Transformation 667
● 1,3-Thiaselenole

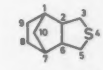
- 2-Acylimino-1,3-thiaselenoles
- Ring Synthesis 512
- 2-Amino-1,3-thiaselenolium Salts
- Ring Synthesis 667
- 2-Thioxo-1,3-thiaselenoles
- Ring Transformation 668
● 1,2,4,6-Thiatriazine



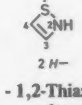
4*H*-

- 3-Oxo-2,3-dihydro-4*H*-1,2,4,6-thiatriazine 1,1-Dioxides
- Ring Synthesis 773
● 1,2,3,4-Thiatriazole

- Ring Synthesis 812
● 4-Thiatricyclo[5.2.1.$0^{2,6}$]decane

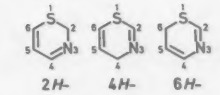


- 8-ene 4,4-Dioxides
- Thermolysis 361 (6854)
● 1,2-Thiazete



2*H*-

- 1,2-Thiazetidine 1,1-Dioxides (2-Alkanesultams)
- Ring Synthesis 894 (6976)
● 1,3-Thiazine



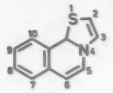
2*H*- 4*H*- 6*H*-

- 4*H*-1,3-Thiazines
- Ring Synthesis 192
- 4-Thioxo-3,4-dihydro-2*H*-1,3-thiazines
- Synthesis 799, 827
- 5,6-Dihydro-4*H*-1,3-thiazines
- Ring Synthesis 181

● 1,3-Thiazole

- 5-Acyl-4-alkylthio-1,3-thiazoles
- Ring Synthesis and Deacylation 250
- 2-Amino-5-cyano-1,3-thiazoles
- Ring Synthesis 16
- 2,4-Diamino-1,3-thiazoles
- Ring Synthesis 806
- 5-Alkylidene-4,5-dihydro-1,3-thiazoles
- Ring Synthesis 192
- 2-Diethoxycarbonylmethylenetetrahydro-1,3-thiazole-4-carboxylic Acids
- Ring Synthesis 733
- 2-Thioxotetrahydro-1,3-thiazoles
- Ring Synthesis 807, 809

● [1,3]Thiazolo[2,3-*a*]isoquinoline



10b *H*–

- [1,3]Thiazolo[2,3-*a*]isoquinolinium-2-thiolates
- Ring Synthesis 801

● [1,3]Thiazolo[3,2-*a*]pyrimidine

5 *H*–

- 5-Oxo-5*H* Der.
- Ring Synthesis 156

● Thieno[2,3-*b*]azepine

4 *H*–

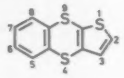
- 4,7-Dioxo-4,7-dihydro-4*H* Der.
- Ring Synthesis 349

● Thieno[3,2-*b*]azepine

4*H*–

- 5,8-Dioxo-5,8-dihydro-4*H* Der.
- Ring Synthesis 349

● Thieno[2,3-*b*][1,4]benzodithiine

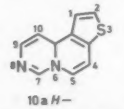


- 3-Amino-, 4,4-Dioxides
- Ring Synthesis 854

● Thieno[2,3-*b*]pyridine

- Ring Synthesis 798

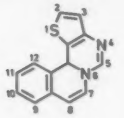
● Thieno[3′,2′:3,4]pyrido[1,2-*c*]pyrimidine



10a *H*–

- 7-Oxo-4,5,7,8,9,10-hexahydro-10a*H* Der.
- Ring Synthesis 1071

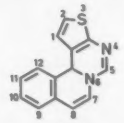
● Thieno[2′,3′:3,4]pyrido[1,2-*c*]quinazoline



12b *H*–

- 7-Oxo-4,5,7,8-tetrahydro-12b*H* Der.
- Ring Synthesis 1071

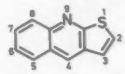
● Thieno[3′,2′:3,4]pyrido[1,2-*c*]quinazoline



12b *H*–

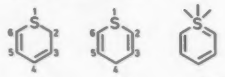
- 7-Oxo-4,5,7,8-tetrahydro-12b*H* Der.
- Ring Synthesis 1071

● Thieno[2,3-*b*]quinoline



- 2-Alkoxycarbonyl Der. and 2-Alkoxycarbonyl-3-hydroxy-2,3-dihydro Der.
- Ring Synthesis 673

● Thiine (Thiopyran)



2 *H*– 4*H*– S VI

- 2*H*-Thiopyrans
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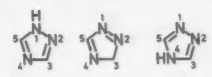

3*H*- 4*H*-

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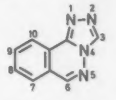
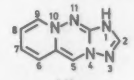
● [1,2,4]Triazolo[3,4-*a*]phthalazine

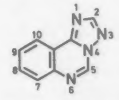


- Ring Synthesis 602
● [1,2,4]Triazolo[5,1-*c*]pyrido-[2,1-*f*][1,2,4]triazine



1*H*-

- Betaines
- Ring Synthesis 697
● [1,2,4]Triazolo[3,2-*c*]quinazoline



- Salts and Mesoionic Derivatives
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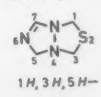
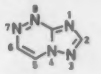
● [1,2,4]Triazolo[1,2-*c*][1,3,4]thiadiazole



1*H*,3*H*,5*H*-

- 1-Imino-1*H*,3*H*,5*H* Der.
- Ring Synthesis 771
● [1,2,4]Triazolo[5,1-*c*][1,2,4]triazine



- 7-Amino-4-oxo-4,8-dihydro Der.
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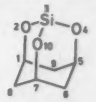

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